CERTIFICATE OF CORRECTION

PATENT NO.   : 6,866,024 B2
APPLICATION NO. : 10/092031
DATED   : March 15, 2005
INVENTOR(S)   : Rizzoni et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 4, lines 46-54,
please delete

"$$a_0\Sigma 1 + a_1\Sigma x_{1,k} + a_2\Sigma x_{2,k} + a_3\Sigma x_{3,k} + a_4\Sigma x_{4,k} = \Sigma y_{true,k}$$

$$a_0\Sigma x_{1,k} + a_1\Sigma x_{1,k}^2 + a_2\Sigma x_{1,k}x_{2,k} + a_3\Sigma x_{1,k}x_{3,k} + a_4\Sigma x_{1,k}x_{4,k} = \Sigma x_{1,k}y_{true,k}$$

$$a_0\Sigma x_{2,k} + a_1\Sigma x_{1,k}x_{2,k} + a_2\Sigma x_{2,k}^2 + a_3\Sigma x_{2,k}x_{3,k} + a_4\Sigma x_{2,k}x_{4,k} = \Sigma x_{2k}y_{true,k}$$

$$a_0\Sigma x_{3,k} + a_1\Sigma x_{1,k}x_{3,k} + a_2\Sigma x_{2,k}x_{3,k} + a_3\Sigma x_{3,k}^2 a_4\Sigma x_{4,k}x_{3,k} = \Sigma x_{3,k}y_{true,k}$$

$$a_0\Sigma x_{4,k} + a_1\Sigma x_{1,k}x_{4,k} + a_2\Sigma x_{2,k}x_{4,k} + a_3\Sigma x_{3,k}x_{4,k} + a_4\Sigma x_{4,k}^2 = \Sigma x_{4,k}y_{true,k}$$
"

and insert

$$a_0\Sigma 1 + a_1\Sigma x_{1,k} + a_2\Sigma x_{2,k} + a_3\Sigma x_{3,k} + a_4\Sigma x_{4,k} = \Sigma y_{true,k}$$

$$a_0\Sigma x_{1,k} + a_1\Sigma x_{1,k}^2 + a_2\Sigma x_{1,k}x_{2,k} + a_3\Sigma x_{1,k}x_{3,k} + a_4\Sigma x_{1,k}x_{4,k} = \Sigma x_{1,k}y_{true,k}$$

-- $$a_0\Sigma x_{2,k} + a_1\Sigma x_{1,k}x_{2,k} + a_2\Sigma x_{2,k}^2 + a_3\Sigma x_{2,k}x_{3,k} + a_4\Sigma x_{2,k}x_{4,k} = \Sigma x_{2,k}y_{true,k}$$ --

$$a_0\Sigma x_{3,k} + a_1\Sigma x_{1,k}x_{3,k} + a_2\Sigma x_{2,k}x_{3,k} + a_3\Sigma x_{3,k}^2 + a_4\Sigma x_{4,k}x_{3,k} = \Sigma x_{3,k}y_{true,k}$$

$$a_0\Sigma x_{4,k} + a_1\Sigma x_{1,k}x_{4,k} + a_2\Sigma x_{2,k}x_{4,k} + a_3\Sigma x_{3,k}x_{4,k} + a_4\Sigma x_{4,k}^2 = \Sigma x_{4,k}y_{true,k}$$

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CERTIFICATE OF CORRECTION

PATENT NO.   : 6,866,024 B2   Page 2 of 5
APPLICATION NO. : 10/092031
DATED   : March 15, 2005
INVENTOR(S)   : Rizzoni et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 7, line 37,
please delete

$$\text{" Estimated Value} = F(f_\theta, \theta \ddot{\theta}, \theta) \quad (5) \text{ "}$$

please insert -- $Estimated\ Value = F\left(f_\theta, \widetilde{\theta}, \ddot{\theta} \right) \quad (5)$ --.

In column 7, line 48,
please delete

$$\text{" } P_{estimate} = a_0 + a_1 f_\theta + a_2 f_\theta \theta \ddot{\theta} + a_3 f_\theta \theta \ddot{\theta} + a_4 \theta \ddot{\theta} \theta \quad (6) \text{ "}$$

please insert -- $P_{estimate} = a_0 + a_1 f_\theta + a_2 f_\theta \widetilde{\theta} + a_3 f_\theta \ddot{\theta} + a_4 \widetilde{\theta} \ddot{\theta} \quad (6)$ --.

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CERTIFICATE OF CORRECTION

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 9, lines 40-61, please delete

"

TABLE 5

Various Basis Functions

Function Number	Basis Function
1	$T_{estimate} = a_0 + a_1 f_\theta + a_2 \tilde{\theta} + a_3 \theta$
2	$T_{estimate} = a_0 + a_1 f_\theta + a_2 \tilde{\theta} + a_3 \theta + a_4 \tilde{\theta}^2$
3	$T_{estimate} = a_0 + a_1 f_\theta + a_2 f_\theta \tilde{\theta} + a_3 f_\theta \theta + a_4 \tilde{\theta}\theta$
4	$T_{estimate} = a_0 + a_1 f_\theta + a_2 f_\theta \tilde{\theta} + a_3 f_\theta \theta + a_4 f_\theta \tilde{\theta} + a_5 f_\theta \theta + a_6 \tilde{\theta}\theta$
5	$T_{estimate} = a_0 + a_1 f_\theta + a_2 \tilde{\theta} + a_3 \theta + a_4 f_\theta^2 + a_5 f_\theta \tilde{\theta}^2 + a_6 \theta^2$
6	$T_{estimate} = a_0 + a_1 f_\theta + a_2 f_\theta \tilde{\theta} + a_3 f_\theta \theta + a_4 \tilde{\theta}^2 + a_5 \tilde{\theta}\theta + a_6 \theta^2$
7	$T_{estimate} = a_0 + a_1 f_\theta + a_2 \tilde{\theta} + a_3 \theta + a_4 f_\theta^2 + a_5 f_\theta \tilde{\theta} + a_6 f_\theta \theta + a_7 \tilde{\theta}^2 + a_8 \tilde{\theta}\theta + a_9 \theta^2$

"

please insert -- Table 5. Various Basis Functions

Function Number	Basis Function
1	$T_{estimate} = a_0 + a_1 f_\theta + a_2 \tilde{\ddot{\theta}} + a_3 \ddot{\theta}$
2	$T_{estimate} = a_0 + a_1 f_\theta + a_2 \tilde{\ddot{\theta}} + a_3 \ddot{\theta} + a_4 \tilde{\ddot{\theta}}^2$
3	$T_{estimate} = a_0 + a_1 f_\theta + a_2 f_\theta \tilde{\ddot{\theta}} + a_3 f_\theta \ddot{\theta} + a_4 \tilde{\ddot{\theta}}\ddot{\theta}$
4	$T_{estimate} = a_0 + a_1 f_\theta + a_2 \tilde{\ddot{\theta}} + a_3 \ddot{\theta} + a_4 f_\theta \tilde{\ddot{\theta}} + a_5 f_\theta \ddot{\theta} + a_6 \tilde{\ddot{\theta}}\ddot{\theta}$
5	$T_{estimate} = a_0 + a_1 f_\theta + a_2 \tilde{\ddot{\theta}} + a_3 \ddot{\theta} + a_4 f_\theta^2 + a_5 \tilde{\ddot{\theta}}^2 + a_6 \ddot{\theta}^2$
6	$T_{estimate} = a_0 + a_1 f_\theta + a_2 f_\theta \tilde{\ddot{\theta}} + a_3 f_\theta \ddot{\theta} + a_4 \tilde{\ddot{\theta}}^2 + a_5 \tilde{\ddot{\theta}}\ddot{\theta} + a_6 \ddot{\theta}^2$
7	$T_{estimate} = a_0 + a_1 f_\theta + a_2 \tilde{\ddot{\theta}} + a_3 \ddot{\theta} + a_4 f_\theta^2 + a_5 f_\theta \tilde{\ddot{\theta}} + a_6 f_\theta \ddot{\theta} + a_7 \tilde{\ddot{\theta}}^2 + a_8 \tilde{\ddot{\theta}}\ddot{\theta} + a_9 \ddot{\theta}^2$

--.

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APPLICATION NO. : 10/092031
DATED   : March 15, 2005
INVENTOR(S) : Rizzoni et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 13, lines 26-44,
please delete

"

TABLE 6

Various Sub-Basis Functions

Function Number	Sub-Basis Function
1	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq$
2	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm \cdot ltq$
3	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm^2 + b_{4,i} \cdot ltq^2$
4	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm \cdot ltq + b_{4,i} \cdot rpm^2 + b_{5,i} \cdot ltq^2$
5	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm \cdot ltq + b_{4,i} \cdot rpm^2 + b_{5,i} \cdot ltq^2 + b_{6,i} \cdot rpm^2 \cdot ltq^2$
6	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm \cdot ltq + b_{4,i} \cdot rpm^2 + b_{5,i} \cdot ltq^2 + b_{6,i} \cdot rpm^2 \cdot ltq + b_{7,i} \cdot rpm \cdot ltq^2 + b_{8,i} \cdot rpm^2 \cdot ltq^2$
7	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot \theta_s$
8	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot \theta_s + b_{4,i} \cdot rpm \cdot \theta_s + b_{5,i} \cdot ltq \cdot \theta_s$
9	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot \theta_s + b_{4,i} \cdot rpm \cdot \theta_s + b_{5,i} \cdot ltq \cdot \theta_s + b_{6,i} \cdot \theta_s^2 + b_{7,i} \cdot rpm \cdot \theta_s^2 + b_{8,i} \cdot ltq^2 \cdot \theta_s^2$

"

and insert -- Table 6. Various Sub-Basis Functions

Function Number	Sub-Basis Function
1	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq$
2	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm \cdot ltq$
3	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm^2 + b_{4,i} \cdot ltq^2$
4	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm \cdot ltq + b_{4,i} \cdot rpm^2 + b_{5,i} \cdot ltq^2$
5	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm \cdot ltq + b_{4,i} \cdot rpm^2 + b_{5,i} \cdot ltq^2 + b_{6,i} \cdot rpm^2 \cdot ltq^2$
6	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot rpm \cdot ltq + b_{4,i} \cdot rpm^2 + b_{5,i} \cdot ltq^2 + b_{6,i} \cdot rpm^2 \cdot ltq + b_{7,i} \cdot rpm \cdot ltq^2 + b_{8,i} \cdot rpm^2 \cdot ltq^2$
7	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot \theta_s$
8	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot \theta_s + b_{4,i} \cdot rpm \cdot \theta_s + b_{5,i} \cdot ltq \cdot \theta_s$
9	$a_i = b_{0,i} + b_{1,i} \cdot rpm + b_{2,i} \cdot ltq + b_{3,i} \cdot \theta_s + b_{4,i} \cdot rpm \cdot \theta_s + b_{5,i} \cdot ltq \cdot \theta_s + b_{6,i} \cdot \theta_s^2 + b_{7,i} \cdot rpm \cdot \theta_s^2 + b_{8,i} \cdot ltq^2 \cdot \theta_s^2$

--.

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INVENTOR(S)   : Rizzoni et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 13, lines 51-53,
please delete

$$\text{``} \quad \varepsilon = \min_{b_{ji}} \left(\sum_{i=1}^{N} (a_{trained,i} - a_{estimated,i})^2 \right) \quad (23) \quad \text{''}$$

please insert --

$$\varepsilon = \min_{b_{j,j}} \left(\sum_{i=1}^{N} \left(a_{trained,i} - a_{estimated,i} \right)^2 \right) \quad (23) \quad \text{--.}$$

Signed and Sealed this

Nineteenth Day of February, 2008

JON W. DUDAS
Director of the United States Patent and Trademark Office